

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

----- x
NORMAN KLEIN, THOMAS GEORGE NELL,
TSIU VINCENT MATSEPE, JAYANT DAJI PEMA, :
JEFFREY SIPHIWE HLATSHWAYO, DIMAKATSO :
ARNOLD MICHAEL MOHASOA, and ZEENATH :
KAJEE, as Liquidators of CONSANI ENGINEERING : 07-CV-10485 (SCR)
(PROPRIETARY) LTD. in Liquidation, :

Plaintiff, : **ANSWER AND**
 : **COUNTERCLAIMS**
- against - :

EXSIF WORLDWIDE, INC., :

Defendant. :
----- x

Defendant EXSIF Worldwide, Inc. ("EXSIF"), by its undersigned attorneys, the firm of Fulbright & Jaworski L.L.P., alleges as follows for its Answer to the Complaint and its Counterclaims against plaintiff Consani Engineering, Inc. ("Consani"):

1. Denies the allegations of Paragraph 1, except admits that Consani purports to seek recovery of \$1,489,497.68 plus interest, and admits the existence of a Master Purchase Order Agreement dated as of December 11, 1995 (the "Agreement") and respectfully refers to the alleged Agreement for its true and complete contents.

2. Denies knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 2, except admits upon information and belief that Consani is or was a corporation having its principal place of business in South Africa and was, until 2005, in the business of manufacturing and selling ISO tank containers used to transport liquid and gas.

3. Denies knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 3, except admits upon information and belief that Consani entered liquidation in early 2005.

4. Admits the allegations of Paragraph 4, except denies that EXSIF's principal place of business is 100 Manhattanville Road, Purchase, New York 10877-2135 and admits that EXSIF's principal place of business is located in Purchase, New York.

5. Denies the allegations of Paragraph 5, except admits that, in or around September 2000, EXSIF became successor to TAL under the Agreement.

6. Admits the allegations of Paragraph 6.

7. Admits the allegations of Paragraph 7, except respectfully refers to paragraph 25 of the Agreement for its true and complete contents.

8. Admits the allegations of Paragraph 8.

9. Denies the allegations of Paragraph 9, except admits that EXSIF is TAL's successor under the Agreement and has purchased certain items from Consani thereunder.

10. Denies the allegations of Paragraph 10, except admits that the Agreement set forth certain of the terms and conditions under which EXSIF purchased certain items from Consani, and respectfully refers to the alleged Agreement for its true and complete contents.

11. Denies the allegations of Paragraph 11, except respectfully refers to the alleged Agreement for its true and complete contents.

12. Denies the allegations of Paragraph 12, except respectfully refers to the alleged Agreement for its true and complete contents.

13. Denies the allegations of Paragraph 13, except respectfully refers to the alleged Agreement for its true and complete contents.

14. Denies the allegations of Paragraph 14, except respectfully refers to the alleged Agreement for its true and complete contents.

15. Admits the allegations of Paragraph 15.

16. Denies knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 16.

17. Admits the allegations of Paragraph 17, except denies that the ISO tank containers Consani delivered to EXSIF conformed in all respects to EXSIF's orders or to the Agreement.

18. Denies the allegations of Paragraph 18, except admits that Consani transmitted invoices to EXSIF between April and June 2004 for ISO tank containers that Consani delivered to EXSIF, and respectfully refers to the alleged invoices for their true and complete contents.

19. Denies the allegations of Paragraph 19, except admits that EXSIF accepted delivery of ISO tank containers from Consani.

20. Denies the allegations of Paragraph 20, except admits that Consani submitted certain invoices to EXSIF between December 2003 and May 2004, and respectfully refers to the alleged invoices for their true and complete contents.

21. Denies the allegations of Paragraph 21, except admits that EXSIF paid at least 90% of the amounts shown on the alleged invoices.

22. Denies the allegations of Paragraph 22.

23. Denies the allegations of Paragraph 23.

24. For its answer to Paragraph 24, realleges its responses to Paragraphs 1 through 23.

25. Denies the allegations of Paragraph 25.

26. Denies the allegations of Paragraph 26.

27. Denies the allegations of Paragraph 27.

28. For its answer to Paragraph 28, realleges its responses to Paragraphs 1 through 27.

29. Denies the allegations of Paragraph 29, except respectfully refers to the alleged invoices for their true and complete contents.

30. Denies knowledge or information sufficient to form a belief as to the truth of the allegations of Paragraph 30.

31. Denies the allegations of Paragraph 31.

32. Denies the allegations of Paragraph 32.

33. Denies the allegations of Paragraph 33.

34. Denies the allegations of Paragraph 34.

35. For its answer to Paragraph 35, realleges its responses to Paragraphs 1 through 34.

36. Denies the allegations of Paragraph 36.

37. Denies the allegations of Paragraph 37.

38. Denies the allegations of Paragraph 38.

FIRST AFFIRMATIVE DEFENSE
(Set-Off and Payment)

39. The amounts sought by Consani herein have been paid by virtue of EXSIF's set-off, pursuant to Paragraphs 21 of the Agreement, of amounts owed by Consani to EXSIF for Consani's breaches of warranty and failure to indemnify EXSIF with respect to sump defects in 290 ISO tank containers that Consani sold to EXSIF (the "Sump Defects").

SECOND AFFIRMATIVE DEFENSE
(Failure to Mitigate)

40. The Complaint is barred in whole or part by Consani's failure to mitigate its damages.

THIRD AFFIRMATIVE DEFENSE
(Limitations)

41. The Complaint is barred in whole or part by applicable statutes of limitations.

**FOURTH AFFIRMATIVE DEFENSE
(Standing)**

42. The alleged Liquidators lack standing or authority to bring or prosecute this action on behalf of Consani.

COUNTERCLAIMS

**First Counterclaim
(Breach of Warranty – Sump Defects)**

43. EXSIF is a corporation organized and existing under the laws of the State of Delaware and has its principal place of business at 2700 Westchester Avenue, Purchase, New York 10577.

44. EXSIF is in the business of leasing ISO tank containers to its customers worldwide.

45. Upon information and belief, plaintiff Consani is or was a corporation having its principal place of business in South Africa and was, until 2005, in the business of manufacturing and selling ISO tank containers used to transport liquid and gas. Upon information and belief, Consani entered liquidation in South Africa in early 2005.

46. The Court has personal jurisdiction over the parties and subject-matter jurisdiction over this Counterclaim, and venue is proper, for the reasons admitted by EXSIF in response to Paragraphs 6-7 of the Complaint. Among other things, the Agreement states: “Seller agrees that any claim or controversy arising out of, or relating to this Purchase Order may be litigated in the State of New York, U.S.A. and Seller consents to be subject to the jurisdiction of the state and federal courts in New York.”

47. On or about December 11, 1995, Consani and Transamerica Leasing, Inc. (“TAL”) entered into a Master Purchase Order Agreement (the “Agreement”).

48. Pursuant to certain transactions in or around September 2000, whereby EXSIF acquired the tank business and assets of TAL, EXSIF succeeded to TAL's rights and obligations under the Agreement.

49. In or around May 2000, pursuant to Purchase Order 23754 (Exhibit A hereto), which incorporated the Agreement by reference, TAL placed an order for 290 ISO tank containers (the "290 Tank Containers") from Consani. The 290 Tank Containers were designed and manufactured by Consani for the carriage of yellow phosphorus ("P4"). A copy of the specification for the 290 Tank Containers is Exhibit B hereto.

50. Yellow phosphorus is a wax-like solid that ignites spontaneously in air at a relatively low temperature, which makes it a dangerous fire risk. It is also toxic by ingestion and inhalation.

51. Among other things, the Agreement warranted that the 290 Tank Containers would be fit for their intended purpose, which Consani knew to be the transport of yellow phosphorus by Monsanto, who was to lease the containers from EXSIF. The Agreement further warranted the 290 Tank Containers against faulty design/workmanship and materials for five years from the date of acceptance of each unit. The Agreement further provided: "All warranties shall run to Buyer, its customers, lessees, indemnitees and their successors and assigns."

52. The 290 Tank Containers were delivered by Consani and accepted by TAL and/or EXSIF between June 2000 and January 2001.

53. Beginning no later than April 2004, the 290 Tank Containers began to experience leaks of yellow phosphorus at their sumps. The leaks were caused by defective welds made by Consani in the manufacturing process (the "Sump Defects"). The Sump Defects rendered the

290 Tank Containers unfit for their intended purpose and breached Consani's warranties to TAL and EXSIF under the Agreement and applicable law.

54. In its "Repair Procedure" dated December 8, 2004 (Exhibit C hereto), Consani acknowledged "the defects found in the P4 welded-in sumps are of a serious nature and should be treated as such." The Repair Procedure further stated: "Consani is of the opinion that all tanks in this series, currently in Monsanto service, could be affected with this type of defect."

55. As a result of the Sump Defects, the value of the 290 Tank Containers was substantially less than if they had been as warranted. The difference between the value of the 290 Tank Containers as warranted and their value as delivered is shown in part by the extent to which the Sump Defects impaired the value to EXSIF of its agreement to lease the 290 Tank Containers to Monsanto. Because of those defects, among other things, EXSIF was forced to grant Monsanto lease concessions in an amount to be proven at trial, but which EXSIF reasonably believes at this time to equal or exceed two million three hundred thousand dollars (\$2,300,000).

56. In addition, the Sump Defects caused substantial incidental and consequential damage to EXSIF. Because of the Sump Defects, EXSIF was forced to incur expenses in taking the 290 Tank Containers out of service, transporting, inspecting and testing them, prior to their repair. EXSIF also incurred expense in providing approximately 63 replacement ISO tank containers to Monsanto for use while Sump Defects in the 290 Tank Containers were being investigated and repaired.

57. By virtue of the foregoing, Consani has breached its warranties under the Agreement and EXSIF has suffered direct, incidental and consequential damages in an amount to be proven at trial, but which EXSIF reasonably believes at this time to exceed two million eight

hundred thousand dollars (\$2,800,000).

**Second Counterclaim
(Contractual Indemnification)**

58. EXSIF realleges Paragraphs 42 through 56 above.

59. As a result of the Sump Defects, Monsanto was damaged and demanded compensation from EXSIF and Consani.

60. Paragraph 14 of the Agreement provides as follows: "Seller agrees to defend at its expense, and to indemnify and hold harmless Buyer, its lessees, employees and indemnities, from and against any and all losses, claims, actions, costs, expenses, fees, damages, fines and liabilities (including reasonable attorneys' fees) based upon a breach of Seller's warranties or a manufacturing defect in equipment covered by this Purchase order or any act or omission of Seller, its agents or employees, or out of Seller's failure to comply with any applicable laws or governmental rules or regulations or any of the terms and conditions of this Purchase Order."

61. EXSIF and Monsanto notified Consani of Monsanto's claims, orally and in writing, on numerous occasions. Consani failed and refused to indemnify EXSIF or Monsanto for Monsanto's damages.

62. On or about February 1, 2006, EXSIF and Monsanto entered into an agreement settling Monsanto's claims regarding the Sump Defects (the "Settlement Agreement"). Pursuant the Settlement Agreement, EXSIF, among other things, refunded Monsanto the sum of \$300,000 and agreed to lease the 290 Tank Containers to Monsanto at substantially reduced, below-market rates for an extended term ending in 2016. The value of the concessions granted by EXSIF under the Settlement Agreement will be proven at trial, and EXSIF reasonably believes it at this time to equal or exceed two million three hundred thousand dollars (\$2,300,000).

63. In addition, the Sump Defects caused substantial losses, costs, expenses, fees and

damages to EXSIF. Because of the Sump Defects, EXSIF was forced to incur expenses in taking the 290 Tank Containers out of service, transporting, inspecting and testing them, prior to their repair. EXSIF also incurred expense in providing approximately 63 replacement ISO tank containers to Monsanto for use while Sump Defects in the 290 Tank Containers were being investigated and repaired.

64. By virtue of the foregoing, Consani is liable under the Agreement to indemnify EXSIF in an amount equal to or exceeding two million eight hundred thousand dollars (\$2,800,000), plus EXSIF's reasonable attorneys' fees.

WHEREFORE, EXSIF demands judgment as follows:

Dismissing the Complaint, with prejudice;

On EXSIF's First Counterclaim, awarding EXSIF damages for Consani's breach of warranty under the Agreement in an amount to be proven at trial, but reasonably believed at this time to exceed two million eight hundred thousand dollars (\$2,800,000), minus the amounts previously set off by EXSIF against amounts claimed herein by Consani;

On EXSIF's Second Counterclaim, awarding EXSIF damages for Consani's breach of its indemnification obligations under the Agreement in an amount to be proven at trial, but reasonably believed at this time to exceed two million eight hundred thousand dollars (\$2,800,000), minus the amounts previously set off by EXSIF against amounts claimed herein by Consani; and

Awarding EXSIF its costs and reasonable attorneys' fees, along with such other and further relief as the Court may deem just and proper.

Dated: New York, New York
January 18, 2008

FULBRIGHT & JAWORSKI L.L.P.

By 

James H. Neale (JN 6972)

666 Fifth Avenue
New York, New York 10103
(212) 318-3000
jneale@fulbright.com

Attorneys for Defendant

TO: Fran M. Jacobs, Esq.
DUANE MORRIS LLP
1540 Broadway
New York, New York 10036-4086
(212) 692-1000
Attorneys for Plaintiffs

EXHIBIT A

Purchase Order

Purchase Order	Date	Revision	Page
TALI - 0000023754	05/31/2000	2 - 09/21/2000	1
Payment Terms	Freight Terms	Ship Via	
30 EOM	SELLER DELIVERS G TAL CY	MANUFACT	
Buyer: Nesbitt, Melissa	Currency Code: USD		

Ship To: Ex-Factory

Vendor: CONS1
 CONSANI ENGINEERING (PTY) LTD.
 182 NASSAU ST.
 SUITE 302
 PRINCETON NJ 08540
 United States

Bill To: Purchase NY
 United States

Tax Exempt? N Tax Exempt ID:

Ln-Sch	Item	Description	Quantity	PO Price	Extended Amt	Due
1-1	SPECIAL TANK CONTAINER		60.00	31,000.00	1,860,000.00	09/30/2000
		Schedule Total			1,860,000.00	
1-2	SPECIAL TANK CONTAINER		60.00	31,000.00	1,860,000.00	10/31/2000
		Schedule Total			1,860,000.00	
1-3	SPECIAL TANK CONTAINER		60.00	31,000.00	1,860,000.00	11/30/2000
		Schedule Total			1,860,000.00	
1-4	SPECIAL TANK CONTAINER		60.00	31,000.00	1,860,000.00	12/31/2000
		Schedule Total			1,860,000.00	
1-5	SPECIAL TANK CONTAINER		50.00	31,000.00	1,550,000.00	01/31/2001
		Schedule Total			1,550,000.00	

Item Total SPEC 8,990,000.00

PURCHASE ORDER 23754

Transamerica Leasing Inc. hereby places Purchase Order 23754 for the equipment listed below will to be manufactured at Consani Engineering (PTY) Ltd. The terms and conditions of Transamerica Leasing Inc. Master Purchase Order 8020 shall be incorporated by reference herein and made a part hereof and apply to this Purchase Order except as set forth below or otherwise agreed and modified in writing by Transamerica Leasing Inc., (Buyer), and Consani Engineering (PTY) Ltd. (Seller).

1. EQUIPMENT/QUANTITY

IMO 1 Tank Containers

15,400 Liter Capacity: 290 Units

All shipments, shipping papers, invoices, and correspondence must be identified our Purchase Order Number. Overshipments will not be accepted unless authorized by Buyer prior to shipment.

Authorized Signature

Purchase Order

Purchase Order	Date	Revision	Page
TALI - 0000023754	05/31/2000	2 - 09/21/2000	2
Payment Terms	Freight Terms	Ship Via	
30 EOM	SELLER DELIVERS @ TAL CY	MANUFACT	
Buyer: Nesbitt, Melissa		Currency Code:	USD

Ship To: Ex-Factory

Vendor: CONS1
 CONSANI ENGINEERING (PTY) LTD.
 182 NASSAU ST.
 SUITE 302
 PRINCETON NJ 08540
 United States

Bill To: Purchase NY
 United States

2. SPECIFICATIONS

2 Units to be built to the following specifications: ULF-15,4.6.36 -
 Enq5288 RevF dated April 27,2000 and
 288 units to be built to specification:
 ULF-15,4.6.36-enq5288 Rev J

Seller to provide Buyer with the following:

1. CD ROM

- a. 5 sets of CD ROM send to Tank. HQ referring to TAL tank numbers and PO. Numbers
 - pictures including all accessories of tanks
 - GA drawing
 - operating guide
 - specification
- b. Furthermore for technical services we need:
 - 2 CD ROM's referring to TAL numbers and PO. Numbers
 - Full set of drawings
 - Full specifications

Seller represents and warrants that the above specification meets and exceeds all requirements contained in Transamerica Leasing Inc's standard tank container specification which are incorporated by reference herein. In the event a discrepancy exists between the Purchase Order and the Manufacturer's specification, the Purchase Order shall control.

All shipments, shipping papers, invoices, and correspondence must be identified our Purchase Order Number. Overshipments will not be accepted unless authorized by Buyer prior to shipment.

Authorized Signature

Purchase Order

Purchase Order	Date	Revision	Page
TALI - 0000023754	05/31/2000	2 - 09/21/2000	3
Payment Terms	Freight Terms	Ship Via	
30 EOM	SELLER DELIVERS @ TAL CY	MANUFACT	
Buyer: Nesbitt, Melissa		Currency Code:	USD

Ship To: Ex-Factory

Vendor: CONSI
 CONSANI ENGINEERING (PTY) LTD.
 182 NASSAU ST.
 SUITE 302
 PRINCETON NJ 08540
 United States

Bill To: Purchase NY
 United States

3. UNIT PRICE (US\$)

Ex-works: \$31,000.00

All unit prices are fixed in US dollars and include the supply and application of all ISO markings and Buyer's logos/markings.

**** Price also includes two sets of spare parts per Appendix "A" attached.

Repositioning charges to TAL designated depots are subject to actual cost at time of shipping and are to be billed separately.

All damages incurred during the positioning and delivery are for the account of the Seller.

*** For any rejected tanks, all reinspection costs and expenses for the TAL surveyor or nominated representative shall be borne by the seller.

4. PRODUCTION/DELIVERY SCHEDULE

September 2000 - 60 units
 October 2000 - 60 units
 November 2000 - 60 units
 December 2000 - 60 units
 January 2001 - 50 units

All shipments, shipping papers, invoices, and correspondence must be identified our Purchase Order Number. Overshipments will not be accepted unless authorized by Buyer prior to shipment.

Authorized Signature

Purchase Order

Purchase Order	Date	Revision	Page
TALI - 0000023754	05/31/2000	2 - 09/21/2000	4
Payment Terms	Freight Terms	Ship Via	
30 EOM	SELLER DELIVERS @ TAL CY	MANUFACT	
Buyer: Nesbitt, Melissa		Currency Code:	USD

Ship To: Ex-Factory

Vendor: CONS1
 CONSANI ENGINEERING (PTY) LTD.
 182 NASSAU ST.
 SUITE 302
 PRINCETON NJ 08540
 United States

Bill To: Purchase NY
 United States

5. TRANSAMERICA PREFIX/UNIT NUMBERS
 TRLU 027710 - 027999 (290 Units)

6. SELLER'S SERIAL NUMBERS
 _____ to _____ (290 Units)

7. a. This document, along with all other documents incorporated by reference herein, shall constitute the purchase order.

b. All documentation for this Purchase Order should be sent via Transamerica Leasing's FTP Lines. At the end of the production for this order all original documentation should be packaged and sent via courier to the attention of Melissa Nesbitt with Doc#500 enclosed.

8. Please sign below to indicate your acceptance of this purchase order and:

A. Fax signed copy to Transamerica Leasing Inc. at fax number (914) 697-2697 within 3 days of the date of this purchase order.

B. Return via mail 3 signed original ink copies. One copy will be countersigned and mailed to you for your files.

Consani Engineering (PTY) Ltd. (Seller)

All shipments, shipping papers, invoices, and correspondence must be identified by our Purchase Order Number. Overshipments will not be accepted unless authorized by Buyer prior to shipment.

Authorized Signature

Purchase Order

Purchase Order	Date	Revision	Page
TALI - 0000023754	05/31/2000	2 - 09/21/2000	5
Payment Terms	Freight Terms	Ship Via	
30 EOM	SELLER DELIVERS @ TAL CY	MANUFACT	
Buyer: Nesbitt, Melissa		Currency Code:	USD
Ship To: Ex-Factory			

Vendor: CONSI
 CONSANI ENGINEERING (PTY) LTD.
 182 NASSAU ST.
 SUITE 302
 PRINCETON NJ 08540
 United States

Bill To: Purchase NY
 United States

 Authorized Signature Date

 Print Name/Title

() Transamerica Leasing Inc. (Buyer)

 Authorized Signature Date

 Print Name/Title

Total PO Amount

8,990,000.00

All shipments, shipping papers, invoices, and correspondence must be identified
 our Purchase Order Number. Overshipments will not be accepted unless
 authorized by Buyer prior to shipment.

Authorized Signature

ATTACHMENT 1.

PO #: 23754 Revision 1

Manufacturer: Consani

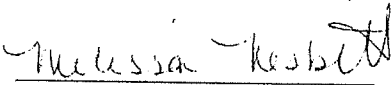
Type Of Equipment: S2

Quantity: Remains the same – needed to revise spec # - see below for details

Authorizing Signatures:

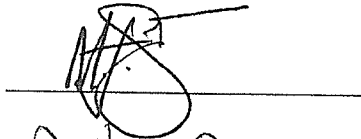
Date:

Melissa Nesbitt:



9/21/00

Michael Smith:



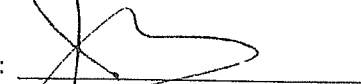
9-21-00

Rita Pallmann:



9/21/00

Jeremy Bergbaum:



21/9/00

**** Customer revised spec – 2 tanks being built to spec #ULF-15,4.6.36 Enq 5288 Rev F and 288 tanks to be built to spec #ULF-15,4.6.36- Enq 5288 rev J. Additional cost of \$167.50 per tank for a total of \$48,240 to be manually invoiced by Consani to us – we will capitalize this invoice against the PO - customer to be billed via a pick up fee for this cost.

EXHIBIT B

CONSANI INTERMODAL CONTAINERSATTACHMENT 2.**TECHNICAL SPECIFICATION****CLIENT : TAL/MONSANTO****SPECIFICATION NO. : ULF-15.4.6.36 - ENQ5288 REVJ****PO : 23754****DESCRIPTION : 15400 LITRE IMO TYPE 1 FRAME TANK CONTAINER****PRODUCT : YELLOW PHOSPHORUS, UN 1381****SERIAL NO'S : TRLU 027710 TO TRLU 027711****1.0 Technical Characteristics**

Chemical Name:	Phosphorus
Proper Shipping Name:	Phosphorus, Yellow, Under, Water
DOT Hazard Information:	Hazard Class: 4.2 ID Number: UN1381 Packaging Group: I Placards: 4.2 Spontaneously Combustible and 6.1 Poisonous Materials Labels: Marine Pollutant
Physical Data:	Appearance: Waxy solid, normally pale yellow to straw colored Odor: Mildly characteristic (phossey); fumes from burning phosphorus are pungent and sharp Melting point: 44.1°C (111°F) Boiling point: 280.5°C (536.9°F) Vapor density: (Air = 1): 4.42 Specific gravity: 1.82 @ 20°C, 1.74 @ 50°C Solubility in water: 0.003% @ 20°C

1.1 Design & Testing

Tank - in accordance with:	IMDG, CFR49, RID/ADR
Frame - in accordance with:	ISO Standard 1496/3

	SI	US
1.2 Nominal Capacity ($\pm 0,75\%$ Tolerance)	15400 l	4068 US gal

1.3 Frame Dimensions And Weight

Max Gross Weight (to be reflected on data plate)	36000 kg	79365 lbs
Tare Weight ($\pm 3\%$ Tol)	5000 kg	11023 lbs
Length	6058 mm	20 ft
Width	2438 mm	8 ft
Height (1CC)	2591 mm	8 ft 6 in

1.4 Tank Dimensions

Internal Diameter	1865 mm	73,425 in
Tangent to Tangent	5060 mm	199,606 in
Shell Minimum Thickness - includes c.a.	7,5 mm	0,295 in
Head Minimum Thickness - includes c.a.	7,5 mm	0,295 in
Corrosion Allowance (c.a.)	1,6 mm	0,063 in
Dished Ends Torispherical	CROWN 1600 mm	KNUCKLE 300 mm
Mild Steel Equivalent - IMDG	6 mm	
- CFR49 (T26)	6,35 mm	

CONSANI INTERMODAL CONTAINERS

TECHNICAL SPECIFICATION

CLIENT : TAL/MONSANTO

®J

SPECIFICATION NO. : ULF-15.4.6.36 - ENQ5288 REVJ

PO : 23754

DESCRIPTION : 15400 LITRE IMO TYPE 1 FRAME TANK CONTAINER

PRODUCT : YELLOW PHOSPHORUS, UN 1381

SERIAL NO'S : TRLU 027712 - TRLU 027716 (5 TANKS) (WO9362)

TRLU 027717 - TRLU 027741 (25 TANKS) (WO9363)

TRLU 027742 - TRLU 027766 (25 TANKS) (WO9364)

TRLU 027767 - TRLU 027791 (25 TANKS) (WO9365)

TRLU 027792 - TRLU 027816 (25 TANKS) (WO9366)

TRLU 027817 - TRLU 027841 (25 TANKS) (WO9369)

TRLU 027842 - TRLU 027866 (25 TANKS) (WO9370)

TRLU 027867 - TRLU 027891 (25 TANKS) (WO9371)

TRLU 027892 - TRLU 027916 (25 TANKS) (WO9375)

TRLU 027917 - TRLU 027941 (25 TANKS) (WO9376)

TRLU 027942 - TRLU 027966 (25 TANKS) (WO9377)

TRLU 027967 - TRLU 027991 (25 TANKS) (WO9378)

TRLU 027992 - TRLU 027999 (8 TANKS) (WO9379)

1.0 Technical Characteristics

Chemical Name:	Phosphorus
Proper Shipping Name:	Phosphorus, Yellow, Under, Water
DOT Hazard Information:	Hazard Class: 4.2 ID Number: UN1381 Packaging Group: I Placards: 4.2 Spontaneously Combustible and 6.1 Poisonous Materials Labels: Marine Pollutant
Physical Data:	Appearance: Waxy solid, normally pale yellow to straw colored Odor: Mildly characteristic (phosphy); fumes from burning phosphorus are pungent and sharp Melting point: 44.1°C (111°F) Boiling point: 280.5°C (536.9°F) Vapor density: (Air = 1): 4.42 Specific gravity: 1.82 @ 20°C, 1.74 @ 50°C Solubility in water: 0.003% @ 20°C

1.1 Design & Testing

Tank - in accordance with:	IMDG, CFR49, RID/ADR
Frame - in accordance with:	ISO Standard 1496/3

03/08/2000

SPEC No ULF-16.4.G.36 - ENQ6288 REVJ

Page 2 of 3

1.5 Pressure & Temperature Rating

Metallurgical Design Operating Temperature	121 °C	250 °F
Steam Heating Saturation Temperature	149 °C	300 °F
Payload Operating Temperature Range	-50 °C to + 121°C	-58 °F to + 250°F
Minimum Product Loading Temperature	55 °C	131 °F
RID/ADR Calculation Pressure	10,0 bar	145,0 psig
Maximum Allowable Working Pressure	6,0 bar	87,0 psig
Hydrostatic Test Pressure	9,0 bar	130,5 psig
Vacuum Pressure (full vacuum)	1,0 bar	14,5 psig

1.6 NDE

Shell	J. E. = 0,85	Radiography = spot
Heads	J.E. = 1,0	Radiography = Full (100%)

All T-junctions to be X-rayed and ultrasonic tested.

Acoustic Emission Test required as prescribed by the AAR 600 procedure for Acoustic Emission Evaluation of tank cars and IM 101 tanks. Monsanto to supply additional information as necessary.

Position of acoustic ports to be agreed with client at time of order. Caps to be tamper-proof and form part of the cladding.

1.7 Material Of Construction

Corner Castings	ISO Standard 1181
Shell	DIN 17440 W1.4401 Hot Rolled No1 Finish C ≤ 0,03% (Equivalent UNS No S31603)
Heads	DIN 17440 W1.4401 Hot Rolled, Polished C ≤ 0,03% (Equivalent UNS No S31603)
Support Rings	ASTM A240 Gr 304 (Equivalent UNS No S30400)
Stiffening Rings (2 off 4,6mm thick)	ASTM A240 Gr 304 (Equivalent UNS No S30400)
Framework	EN 10210 S355 J2H (Hollow section) (UTS ≥ 490 - 630 mPa, Re ≥ 355 mPa) EN 10025 S355 K2G3C (Plates) (UTS ≥ 490 - 630 mPa, Re ≥ 355 mPa) EN 10025 S355 K2G3 (Rolled section) (UTS ≥ 490 - 630 mPa, Re ≥ 355 mPa)

2.0 Tank Fittings And Accessories**2.1 Manhole**

• Supplier	Consani
• Quantity	One
• Dimensions	500mm ID (20 in)
• Specification	Stainless steel 316; 6 bar pressure rating; flanged and bolted
• Gasket	Teflon (PTFE) with a stainless steel mesh insert.
• Remarks	A clearance between top of shell and nuts on manlid is a minimum of 3 inches. A lifting eye is welded to the centre of the lid. Two lifting handles are provided on the lid.

2.1.1 Nozzle (12 in)

- Not fitted

2.2 Safety Relief Valve Assembly

• Supplier	Fort Vale
• Quantity	One
• Dimensions	80mm Flanged Supermaxi Highflow, Model 019/29600801
• Specification	+6,6 bar (+95,7 psi), pressure only
• Gasket	Safety Relief Valve = FORTYT
• Remarks	The assembly is complete with a burst disc (7,26 bar) and manometer. Bursting disc is teflon coated monel. The assembly is located in the centre spillbox.

03/08/2000

SPEC No ULF-15.4.6.36 - ENQ5288 REV.1

Page 3 of 9

2.2.1 Pressure Gauge (PR Gauge)

- Supplier Consani / Ashcroft
- Quantity One
- Specification 0 - 160 psig, pressure only.
- Gasket Teflon (PTFE) with a stainless steel mesh insert.
- Remarks Mounted on the centre line in the rear spillbox with a 45° schedule 80 elbow. Bolting to be drilled and cut to SAE (NC) coarse thread.

2.3 Water Overflow

- Not fitted

2.4 Top Load/Discharge (P4 OUT to STG TK = 2.5") Painted Yellow

- Supplier Durco
- Quantity One
- Dimensions (2 - ½")
- Specification Durco, stainless steel plug valve (# 2.5G4Z11 DS/D4) (150 # flanged pressure tested to 300PSI at the design temperature.)
- Gasket Teflon (PTFE) with a stainless steel mesh insert.
- Remarks The assembly is complete with a valve, syphon tube (Sch 40) and guide (without bayonet). The assembly terminates with bolted blind flange with NPT plug which will be supplied and fitted by Monsanto. A 6" sump is provided in the bottom of the tank underneath the top load / discharge assembly. The valve is situated on a tank pad to reduce height. The sump is to be 70mm deep. Bolting to be drilled and cut to SAE (NC) coarse thread.

2.5 Phos Water Valve (Phosy H2O IN = 2") Painted Green,

- Supplier Durco
- Quantity One
- Dimensions (2")
- Specification Durco, stainless steel plug valve (# 2G4Z11 DS/D4) (150 # flanged pressure tested to 300PSI at the design temperature.)
- Gasket Teflon (PTFE) with a stainless steel mesh insert
- Remarks The assembly terminates with a bolted blind flange with NPT plug which will be supplied and fitted by Monsanto. The valve is situated on a tank pad to reduce height. Bolting to be drilled and cut to SAE (NC) coarse thread.

2.5.1 Outage Valve (Top off Connection 1.5") Painted Orange

- Supplier Durco
- Quantity One
- Dimensions (1 - ½")
- Specification Durco, stainless steel plug valve (# 1-1/2G4Z11 DS/D4) (150 # flanged pressure tested to 300PSI at the design temperature.)
- Gasket Teflon (PTFE) with a stainless steel mesh insert.
- Remarks The assembly terminates with a bolted blind flange with NPT plug which will be supplied and fitted by Monsanto. 1 - ½" dip tube set to accommodate water blanket level at 95% volume. The valve is situated on a tank pad to reduce height. Bolting to be drilled and cut to SAE (NC) coarse thread.

2.6 Thermometer

- Supplier Consani
- Quantity Two
- Dimensions 116mm dial diameter
- Specification Surface mounted type. Dual scale -18°C to 205°C / 0°F to 400°F (G45 UB411)
- Remarks Located on each side of the tank, diagonally opposite each other. Capillary pocket is mounted approximately 1/3 up from the bottom of the tank.

03/08/2000

SPEC No ULF-15.4.6.38 - ENG6288 REV.1

Page 4 of 9

2.6.1 Thermocouple Port

- Supplier Consani
- Quantity Two
- Dimensions 1" welded thermocouple ports extending to the surface of the cladding. (The port does not penetrate the tank's shell).
- Specification Stainless steel 316 NPT female thread, 6 Bar rating with plug and cable.
- Remarks Located on the mid line on both sides of the tank, diagonally opposite each other, approximately 280mm from the front end tan line.

2.7 Protective Housing / Spillbox

- Supplier Consani
- Quantity Three
- Location Front Spillbox: Outage valve / Phosphy water valve
Rear Spillbox: Top discharge / Pressure Gauge.
Centre Spillbox: Manhole / Safety valve
- Specification ASTM A240 - 304; 2,5mm housing. Each housing is provided with 2 surface mounted PVC tubes draining to the bottom part of the container. 2mm Thick stainless steel 304 lids are fitted. The lids are lockable. Dimension of spillboxes to be ergonomically suitable for ease of operator valve handling. The manway spillbox to be sufficiently wide for better access to the manhole lid. Spillbox lids to be completely removable. Spillbox hinge pivots to be $\pm 1/2 - 1$ " above the walkway level. Lids open towards the outside ends of the tank, i.e. Rear box to the rear, Front box to the front and the centre box to the rear over the rear box. A handle will be provided for closing the lids.
- Remarks

2.8 Steam Heating

- Supplier Consani
- Quantity Contact area = 5,8m². Effective area = 10m².
- Dimensions 10 runs 130mm x 4310mm, with 1½" NPT male threaded inlet reduced to a ¾" line to feed steam coils. A ¾" NPT outlet connection is provided. Caps are secured with cable preventing them from dropping below the frame. Connections are provided on the left side of the tank looking from the rear. Connections are 12" apart, measured on the same horizontal plane.
- Specification ASTM A240 - 316L, 4 bar working pressure, 6 bar field hydrostatic test pressure, 10bar shop hydrostatic test pressure, with 4,4 bar pressure relief valve (F/V 58/00**00).
- Remarks Decals to reflect "steam inlet", "steam outlet" and "MAWP = 4 bar"
The general data plate to reflect the steam heating system shop test pressure = 10 bar. A protection frame is provided around the outlet and inlet coils

2.9 Insulation And Cladding

- Supplier Consani
- Dimensions Insulation: 100mm thick Polyisocyanurate closed cell, density 36kg/m³.
Cladding: 0,8mm thick prepainted white aluminium cladding (grade 5251) with sealed lap joints
- Remarks Diameter 10mm drain holes on underside of insulation. One hole per cladding panel. Lagging material to be environmentally friendly
The tank supports and spillbox lids are insulated. Where additional support is required for cladding compressed fibreglass, density 175 kg/m³ W-11 can be used. Spillbox necks are left uninsulated. A cut-out of 185mm diameter is provided in the top discharge lid insulation, just above the P4 valve.

03/08/2000
SPEC No ULE-15.4.6.38 - ENQ6288 REV J

Page 6 of 9

3.0 Access and Safety

3.1 Walkways

- Supplier
- Quantity
- Dimensions
- Specification
- Remarks

BI-level walkway

Krieg & Zivy or equivalent

One level for valve access with a $\pm 10''$ step down from top of frame
475mm wide

Marine resistant aluminium. Stainless steel fasteners with Nylock Nuts

The walkways give access to both ends of the container and both spillboxes. There are no gaps between walkways and the edge of the rail (to be filled in with aluminium chequer plate). Walkway terminates in an L shape. Toe plates will be fitted on the front and rear frames above the walkway. Bent-up chequer plate will be fitted between the spillboxes.

3.2 Ladder

Two ladders 300mm wide (25mm section) are provided one on the right hand side of the rear end frame and one on the left hand side of the front frame. Stainless steel fasteners are used. Ladder rungs to be antislip type. Material is commercial quality mild steel. The ladder is hot dip galvanised.

3.3 Top corner Protection Spreaders

4-off per tank located at the top frame corners. Handholds are provided adjacent to the ladder.

3.4 Bottom Corner Protection

4-off per tank located on the underside of the end frame bottom members adjacent to the corner castings.

3.5 Grounding Connection

2-off stainless steel lugs 50 x 40 x 2,5mm located at each end of the tank. Lug to have a 20mm hole in centre.

3.6 Top Rails

Longitudinal top protection rails are fitted.

3.7 Document Holder

1-off PVC document holder 90mm diameter x 300mm long. The holder is water resistant and is fixed to the rear right hand side behind beam. Drain hole in holder to be orientated at the lowest point.

3.8 Placard Holders

Aluminium Labelmaster placard holders are fitted. 2 per side (8 total) and are to be riveted to the cladding 1/3 from the bottom.

3.9 Decals

One set per tank as per code requirements. Owner logos supplied and applied by Consani.

3.10 Data Plates

One set of stainless steel data plates per tank as per code requirements. The CSC plate to be endorsed with the "ACEP" mark. All plates will be drilled and fixed with stainless steel rivets.

3.11 Calibration

No calibration plates will be fitted, paper calibration charts will be supplied with the data pack.

3.12 Fusible Link Provision

Brackets are fitted to the frame allowing for the future fitting of a fusible link system when a bottom discharge is fitted to the tank.

4.0 Finish

4.1 Shell

Internal Shell Surface
Longitudinal Welds
Circular Welds

No 1 finish
As welded
Ground flush and strip polished to 180 grit
(Ra = 1,3 μ m max)

03/08/2000

SPEC No ULE-16.4.6.36 - ENQ5288 REV.1

Page 6 of 9

4.2 Dished Ends Internal Surface Polished to 180 grit (Ra = 1,3 um max)
Weld Seams Ground flush

4.3 Cleaning

On completion of fabrication, the vessel's internal surface is degreased, pickled, passivated and neutralised, guaranteed clean. The tank is sealed for delivery on completion of final inspection.

4.4 Painting

Vessel exterior shell to be coated with Carboline Thermoline 450, with DFT of 0.008-0.010 inch or WFT of 0.011 - 0.012 inch.

The carbon steel frame components are shotblasted to SA 2½ and painted with a 3 coat (client specified system) as follows:

First coat	Hempadur Primer (15300)	50 microns min DFT
Intermediate coat	Hempadur (45080)	50 microns min DFT
Final coat	Hempathane (55210)	50 microns min DFT
TOTAL	(Zinc not allowed)	<u>150 microns min DFT</u>

Colour = Blue RAL 5002 (Hempel 3017)

4.5 Test and Homologations

1. These tank containers are constructed according to an approved design.
2. Each production unit is subject to testing and non-destructive examination as required by ASME VIII Division 1, UIC and Consani's own quality requirements. Each unit is inspected by the independent Inspection Authority.
3. The tank container has been specially tested and approved for a stacking load of 86400 kg per corner post, which corresponds to nine-high stacking.
4. The tank container fulfils the performance specification of the following International Organisation's regulations and recommendations and is supplied with their Approvals.

US DOT-IM101	CSC
TIR/Customs	TC
RID/ADR	UK (DOT)
AAR 600	UIC (34000kg with a superheavy decal)
IMDG-IMO Type 1	

5.0 Documentation

The following documentation will be provided:

1. A food grade cleanliness certificate (placed in the document holder). The document must certify the PH value of the final rinse, and that the tank interior is completely dry.
2. Initial Inspection Certificate for each tank.
3. Maintenance/parts manuals will be provided.

03/08/2000
SPEC No ULF-16.4.8.38 - ENQ5288 REV.J

Page 7 of 9

6.0 General

1. X-rays and initial test certs to be kept for a minimum period of 5 years.
2. Shell and dish end material to be dual certified to DIN 17440-1.4401 and ASTM A240-Gr 316.
3. Shell dish end mill certificates to be forwarded to client.
4. The pressure relief valve and manhole blind flange are hydrostatically tested by the supplier and certified prior to placement on the tank.
5. Record serial numbers of valves and correspond to tank number. List to be provided to client.
6. Manufacturers serial no. to be engraved on the CSC plate.
Client serial no. to be hard stamped on the bottom rear right hand corner casting.
7. One additional set of calibration charts, per order, is to be provided to the client.
8. Warranties :

Painting System	: 5 years
Workmanship/structure/material	: 5 years
Decals	: 9 years
9. All fasteners to be fitted with electrolysis protection where dissimilar metals are in contact.
10. Inspection Agency :- Lloyd's Register
11. All weld attachments from frame to vessel to be continuous welded, no slots or skip welding permitted.
12. The tank and frame design will be subjected to a simulated "pivot drop test" using the finite element analysis technique. Client to give detailed procedure / requirements for this test. Monsanto to select third party engineer for evaluation of all tank designs submitted for consideration.
13. For the chemical process working temperature of 50°C, calculations of the payload weight are designed based on Sp. Gr. Of 1.74 for maximum capacity of 85% P4, and 10% H2O blanket, 5% N2 pad, which will total an approximate 13,090 liters P4 (50,125lbs.) and 1,540 liters H2O (3,389 lbs.).
14. Shell will be covered with plastic to prevent iron contamination

7.0 Notes

- 1) All valves situated on tank pads to reduce height.
- 2) All valves to be tested to 300 psi.
- 3) All tank pads to be raised face and serrated.
- 4) All stainless steel studs/bolts and nuts to be electro-galvanised to prevent galling.
- 5) Anti-slip tape to be fitted on the top side of all spillbox lids.
- 6) Rotate the SRV 90 degrees counter clockwise to place the gauge between the valve and the spill box side wall.
- 7) Rotate outage valve counter clockwise to bring the handle parallel to the spill box side wall.
- 8) Overflow drain hoses to drop straight down and attach to cladding at bottom with external clamp.
- 9) A thermal well pipe connection to tank, will reduce fillet weld to give breakaway in case of impact. Also include swivel cap chain to hold cap to tank.
- 10) TIR clasps to be fitted to all thermoport bungs.

DESIGN: Compiled by :

Reviewed by:

SALES/CONTRACTS :

CUSTOMER APPROVAL :

BY :

DATE :

03/09/2000
SPEC No ULF-16.4.6.38 - ENO5288 REV.J

Page 8 of 9

Revision History:

Original to Rev A (29/07/99)

- 1) Sump added (2.4).
- 2) Simulated "pivot drop test" added (4.5.5.).

From Rev A to Rev B (05/01/2000)

- 1) 12" nozzle removed. (was 2.1.1)
- 2) Item no's added to descriptions in line with those indicated on drawing "Rob's.tif".
- 3) Water overflow connection removed. (was 2.3)
- 4) Pressure gauge arrangement revised. (2.2.1)
- 5) Quantity and location of thermometer revised. Was 1 off. (2.6)
- 6) Location of fittings in spillboxes revised to suit. (2.7)
- 7) Relief valve added to steam heating system. Additional steam heating connections added. (2.8)
- 8) Location of thermocouple ports to be specified by client. (2.6.1)
- 9) Provision for a second relief valve removed. (2.2)
- 10) **NOTE:**

This specification is based on Monsanto Specification Revision no. 4 issued on 17 December 1999 and accompany drawing reference "Rob's.tif".

From Rev B to Rev C (27/01/2000)

- 1) Manlid cover hinged (2.1).
- 2) Manway spillbox enlarged (2.7).
- 3) Spillbox lids completely removable (2.7).
- 4) Note added to walkway description (3.1).
- 5) Spillbox level in line with the walkways (2.7).
- 6) Nut to shell clearance indicated on manhole (2.1).
- 7) Valves situated on tank pads to reduce height (2.4/2.5/2.5.1)
- 8) Burst disc teflon coated monel (2.2).
- 9) Top load, Phos water valve and outage valve assemblies terminates with an NPT male threaded nipple and cap. Previously flanged (2.4/2.5/2.5.1).
- 10) Stud/bolt /nut material now stainless steel electro-galvanised (7.0).
- 11) Valves tested by supplier to 300 psi (7.0).
- 12) Syphon tube guide "without bayonet" added (2.4).
- 13) Steam inlet and outlet previously on both sides of the tank (2.8).
- 14) Thermocouple port on rear end was female NPT threaded with plug. Now male NPT with cap.
- 15) Acoustic ports position to be agreed with client (1.6).
- 16) Tank pads raised face and serrated (7.0).
- 17) Drain tubes previously stainless steel. Now PVC (2.7).
- 18) Phos valve removed from manway spillbox and fitted in rear spillbox (2.5).
- 19) Relief valve removed from rear spillbox and fitted in manway spillbox (2.2).
- 20) Tare weight revised, was 4980kg (1.3).

From Rev C to Rev D (03/02/2000)

- 1) Manlid hinge description clarified (2.1).
- 2) Opening direction of spillbox lids added (2.7).
- 3) Inlet and outlet steam connections were BSP. Spacing between connections added (2.8).

From Rev D to Rev E (13/04/2000)

- 1) Steam heating static loading added (149°) (1.5)
- 2) SRV set pressure corrected to 95.7 psi from 83.8 (2.2)
- 3) Pressure gauge supplier changed to Ashcroft and gasket revised. (2.2.1)
- 4) Male threaded nipple and cap removed from valve blind flanges (2.4, 2.5, 2.5.1)
- 5) Thermometer supplier changed to Weiss and location changed. (2.6)
- 6) Thermocouple port description revised (2.6.1)
- 7) Spillboxes increased from 2 to 3 (2.7)
- 8) Steam Heating in and outlets revised to BSP from NPT (2.8)
- 9) Walkway level revised (3.1)
- 10) Calibration Plates coated (3.11)
- 11) General info added (6)

03/08/2000

SPEC No ULF-15,4.6.36 - ENQ6233 REVJ

Page 9 of 9

From Rev E to Rev F (27/04/2000)

- 1) AE testing port housing is to form part of the cladding.(1.6)
- 2) Top Loading/Discharge valve description added and valve spec. detailed.(2.4)
- 3) Phos water valve description added and valve spec. detailed.(2.5)
- 4) Outage valve description added and valve spec. detailed.(2.5.1)
- 5) Thermometer spec. added. (2.6)
- 6) Thermocouple port positions revised. (2.6.1)
- 7) Position of the pressure gauge and the outage valve interchanged.(2.7).

From Rev F to Rev G (06/06/2000)

- 1) Thermo couple port position revised to 280mm from 150mm (2.6.1).
- 2) Steam heating PRV specification added (F/V 56/00**00) (2.8).
- 3) Paint specification revised (4.4).
- 4) Item 3 removed from section 7.

From Rev G to Rev H (29/06/2000)

- 1) Thermometer supplied by Consani (2.6).
- 2) Spillbox necks are left uninsulated (2.9).
- 3) Calibration plates are not required (3.11).

From Rev H to Rev I (02/08/2000)

- 1) A lifting eye is welded to the centre of the manlid. Two lifting handles are provided welded at 30° from the horizontal (2.1).
- 2) All gaskets have been changed to Teflon (PTFE) with a stainless steel mesh insert.
- 3) All bolting on tank flanges has been changed to SAE with a coarse thread.
- 4) All blind flanges on the Durco valves, will now be supplied and fitted by Monsanto in Soda Springs.
- 5) Top discharge syphon pipe will now be schedule 40 and not (Sch 10).
The sump pot will be dropped to achieve a depth of 70mm (2.4).
- 6) Thermometers and thermocouple ports to be fitted diagonally opposite each other (2.6).
- 7) A handle to be fitted to spillbox for closing purposes.
- 8) Steam coils reduced to 10 runs and heating through the vacuum rings is removed.
Contact heating area is now 5.8m².
In and outlet connections changed to NPT.
A protection frame is fitted around the outlet and inlet (2.8).
- 9) A cut-out in the insulation in the spillbox lid above the P4 valve diameter 185mm is provided (2.9).
- 10) A aluminium chequer plate toe plate is fitted on the front and rear frame above the walkways. Bent-up chequer plate is fitted between the spillboxes. The gap between the spillboxes and walkways is reduced to 2" (3.1).
- 11) 2 ladders are now fitted (3.2).
- 12) Placard holders are now aluminium and are riveted to the cladding (3.8).
- 13) Anti-slip tape to be fitted to the topside of the spillboxes.

From Rev I to Rev J (03/08/2000)

- 1) Additional items added to section 7.

EXHIBIT C

ATTACHMENT 8.



Consani Road
Elsies River
P.O. Box 1
Elsies River
7480
South Africa
Tel: +27 21 590 3400
Fax: +27 21 591 2825
E-mail: info@consani.co.za
Web: www.consani.co.za

REPAIR PROCEDURE FOR YELLOW PHOSPHORUS (P4) TANKS WITH WELDED-IN

SUMPS

MONSANTO SERVICE ONLY

(168mm replacement)

CONSANI ENGINEERING REF: CS/MONSANTO SUMP/repair procedure 168

DATE: 8 DECEMBER 2004

REPORT BY: CK STAPELBERG

REVISION: Draft

1. GENERAL

This proposal is based on the following assumptions:

- 1.1 That the defects found in the P4 welded-in sumps, are of a serious nature and should be treated as such.
- 1.2 That no relevance to the particular shift during manufacturing could be found, to exclude any tanks from the population to be repaired.
- 1.3 Consani is of the opinion that all tanks in this series, currently in Monsanto service, could be affected with this type of defect.
- 1.4 That there could be contamination with P4 between the external compensation pad and the shell external.
- 1.5 That the repairs need to be done as a matter of urgency, with minimum throughput time, in the repair shop.
- 1.6 The repairs need to be combined with the required 5 year statutory inspection.

2. PROPOSED PROCEDURE

2.1 Removal of sump

- 2.1.1 The tanks need to be cleaned of all P4, and free of any contamination.
- 2.1.2 The external cladding needs to be removed from the area around the sump.
- 2.1.3 Remove the siphon pipe guide by means of grinding away the four attachment points. Keep this guide for re-fitment.
- 2.1.4 From the inside of the tank, cut out the sump at an angle by means of a plasma cutter, as per drawing 1192-04-01.
- 2.1.5 Grind away the outer fillet weld, connecting the compensation pad to shell, as per drawing 1192-04-01. A disc grinder can be used.
- 2.1.6 Remove the remnants of the old sump and welding material by means of grinding, as per drawing 1192-04-01. A disc grinder can be used. The final ID of the hole should be appropriate to fit the same size sump (OD 168mm). A hole ID of typically 172-174mm would be acceptable.

ATTACHMENT 8. contd.

- 2.1.7 Dispose of the removed pieces appropriately. Assume P4 contamination, between shell and compensation pad. Monsanto safety specialists need to co-ordinate, as per Monsanto procedures.

2.2 Preparation of Shell

- 2.2.1 Remove all plasma cutting debris from the shell, by means of grinding.
- 2.2.2 Grind the inside edge of the hole to get the weld bevel at 30° as per drawing No 1192-04-02.

2.3 Replacement of New Sump

- 2.3.1 Fit and tack weld new sump in position as per drawing No 1192-04-02, "weld detail NW3".
- 2.3.2 Weld the sump from the inside using weld procedure No WPS AT 827 using GTAW(TIG) or WPS AM 446 for pulsed GMAW(pulsed MIG).
- 2.3.3 Limit the inter pass temperature to a maximum of 150 deg C.
- 2.3.4 Back-grind the outside of the weld to sound metal and P.T.(Dye penetrant) test to ensure all defects are removed.
- 2.3.5 Weld from the outside to fill the background area.
- 2.3.6 Grind the outside and inside of the weld flush.
- 2.3.7 Polish the inside weld after grinding to remove any sharp grinding marks.
- 2.3.8 Fit and weld the outside compensation pad as per drawing No 1192-04-02, "weld detail NW3".
- 2.3.9 Fit and weld the old siphon pipe guide, as per drawing 1192-04-02.

2.4 Completion of repairs

- 2.4.1 Do X-ray/gamma-ray of the completed new sump weld to ensure no defects are left in the weld.
- 2.4.2 Pickle and passivate the newly welded sump and surrounding area, both inside and outside.

ATTACHMENT 8. Contd.

2.4.3 Do hydrostatic test as required by the code. This will cover both the repair and the 5 year inspection requirement.

2.4.4 Paint the new sump as per Monsanto spec.

2.4.5 Re-fit insulation.

END